

What is claimed is:

1 1. A method of programmatically generating a class library to represent messages described
2 in a structured language specification, comprising steps of:

3 parsing an input structured language specification encoded in a structured markup
4 language;

5 identifying selected aspects of the input structured language specification during the
6 parsing step; and

7 creating output code for the identified selected aspects by applying previously-specified
8 operations, wherein the previously-specified operations create programming language statements
9 in a target programming language such that the created output code comprises a class library in
10 the target programming language.

11 2. The method according to Claim 1, wherein the input structured language specification is a
12 schema.

13 3. The method according to Claim 1, wherein the input structured language specification is a
14 Document Type Definition (“DTD”).

15 4. The method according to Claim 1, wherein the structured markup language is Extensible
16 Markup Language (“XML”).

17 5. The method according to Claim 1, wherein the selected aspects comprise presence of one

2 or more of (1) elements and (2) attributes encoded in the structured markup language.

1 6. The method according to Claim 5, wherein the selected aspects further comprise presence
2 of child elements.

1 7. The method according to Claim 5, wherein the selected aspects further comprise whether
2 the attributes are required attributes.

1 8. The method according to Claim 1, wherein the selected aspects and the previously-
2 specified operations are specified in a template.

1 9. The method according to Claim 8, wherein the template is adapted to creating the output
2 code in the target programming language.

1 10. The method according to Claim 9, further comprising the step of substituting a different
2 template to create the output code for the input structured language specification in a different
3 target programming language..

1 11. The method according to Claim 1, wherein the target programming language is an object-
2 oriented programming language, and wherein the previously-specified operations comprise
3 creating output code for creating objects which represent elements of the input structured
4 language specification.

- 1 12. The method according to Claim 11, wherein the previously-specified operations further
2 comprise creating output code for setting value in, and retrieving values from, the created objects.
- 1 13. The method according to Claim 11, wherein the previously-specified operations further
2 comprise creating output code for sending a message whose contents reflect one of the created
3 objects.
- 1 14. The method according to Claim 12, wherein the previously-specified operations further
2 comprise creating output code for sending a message whose contents reflect the values retrieved
3 from one of the created objects.
- 1 15. The method according to Claim 12, wherein the previously-specified operations further
2 comprise creating output code for receiving a message and using contents of the received message
3 for setting the value in one of the created objects.
- 1 16. The method according to Claim 1, further comprising the step of using rules to influence
2 processing of the creating step.
- 1 17. The method according to Claim 16, wherein one of the rules specifies where the created
2 output code should be stored.

1 18. The method according to Claim 16, wherein one of the rules specifies a name for the class
2 library.

1 19. The method according to Claim 16, wherein one or more of the rules specifies special
2 processing to override the creating step for particular ones of the aspects.

1 20. The method according to Claim 1, wherein the method is invoked during processing of a
2 web service which is specified using a reference to the input structured language specification.

1 21. The method according to Claim 20, wherein the reference is specified as a Uniform
2 Resource Locator in a Web Services Definition Language document.

1 22. The method according to Claim 8, further comprising the step of programmatically
2 generating migration logic for the input structured language specification..

1 23. The method according to Claim 22, wherein the step of programmatically generating
2 migration logic further comprises steps of:

3 repeating the parsing step for parsing a newer version of the input structured language
4 specification;

5 comparing the parsed input structured language specification to the parsed newer version;

6 identifying, during the comparing step, elements and attributes which are present in the
7 input structured language specification but which are not present in the newer version; and

8 modifying the template to account for the identified elements and attributes; and
9 wherein the modified template is used by the identifying and creating steps.

1 24. The method according to Claim 23, wherein the modifying step is performed by a human.

1 25. The method according to Claim 23, wherein the modifying step is performed
2 programmatically.

1 26. A system for programmatically generating a class library to represent messages described
2 in a structured language specification, comprising:

3 means for parsing an input structured language specification encoded in a structured
4 markup language;

5 means for identifying selected aspects of the input structured language specification during
6 operation of the means for parsing; and

7 means for creating output code for the identified selected aspects by applying previously-
8 specified operations, wherein the previously-specified operations create programming language
9 statements in a target programming language such that the created output code comprises a class
10 library in the target programming language.

1 27. A computer program product for programmatically generating a class library to represent
2 messages described in a structured language specification, the computer program product
3 embodied on one or more computer-readable media and comprising:

4 computer-readable program code means for parsing an input structured language
5 specification encoded in a structured markup language;
6 computer-readable program code means for identifying selected aspects of the input
7 structured language specification during operation of the computer-readable program code means
8 for parsing; and
9 computer-readable program code means for creating output code for the identified
10 selected aspects by applying previously-specified operations, wherein the previously-specified
11 operations create programming language statements in a target programming language such that
12 the created output code comprises a class library in the target programming language.